

EQUIPMENT AND PROCESS PRECERTIFICATION PROGRAM

EVALUATION OF THE AIR QUALITY PERFORMANCE CLAIMS FOR LASER TOUCH AND TECHNOLOGIES, LLC'S LASER TOUCH MODEL LT-B512

FEBRUARY 2002

Equipment: Laser Touch Model LT-B512

Applicant: Laser Touch and Technologies, LLC

3642 University Avenue Waterloo, Iowa 50701

Applicant Contact: Mr. Nick Horan

Title: President

Phone Number: (319) 268-9826

E-mail: lasertouch@LT-T.com

Website: www.lt-t.com

Application Number: 02260101 Executive Order Number: G-096-029-037

Executive Order Date: February 15, 2002

Air Resources Board Contact: Mr. Todd Sterling
Phone Number: (916) 445-1034
E-mail: tsterlin@arb.ca.gov

ARB's Precertification Website: www.arb.ca.gov/eqpr/eqpr.htm

ABSTRACT

The purpose of this report is to document the California Air Resources Board's (ARB's) evaluation and verification of the air quality-related claims made by Laser Touch and Technologies, LLC (Laser Touch) for its Laser Touch Model LT-B512.

In an effort to make progress towards attaining healthy air quality in California, regulations restrict emissions of volatile organic compounds (VOCs) from a broad spectrum of activities. VOCs are emitted directly as by-products of combustion-related activities or as fugitive emissions from sources such as petro-chemical operations and solvent-containing products.

In an effort to slow the depletion of stratospheric ozone, the United States Environmental Protection Agency (U.S. EPA) administers several voluntary and regulatory programs covering the production, phaseout, recycling, handling, and substitution of stratospheric (upper-level) ozone-depleting substances.

The reduction of VOC emissions from all sources and the support of U.S. EPA's stratospheric ozone protection programs are part of California's clean air strategy to achieve and maintain healthy air quality in California.

As part of its Equipment and Process Precertification (Equipment Precertification) Program application package, Laser Touch requested that the ARB evaluate its proposed performance claim. When using Laser Touch Model LT-B512 with an Accuspray Model 19 high volume low pressure paint spray gun, in accordance with the Laser Touch manufacturer's instructions, the volume of a single-stage polyurethane enamel application was decreased by an average of 15 percent and therefore a corresponding volatile organic compound emissions reduction of an average 15 percent can be assumed

Upon successful completion of the requirements associated with the ARB's Equipment Precertification Program, a report is issued with two companion documents— an Executive Order issued by the ARB and a certificate issued by the California Environmental Protection Agency. These documents serve as official records that the ARB has independently verified the applicant's performance claims. Executive Orders issued under the ARB's Equipment Precertification Program are valid for three years from the date of issuance, provided that the holder complies with: 1) the terms and conditions identified in this report; and 2) the general requirements discussed in the Equipment Precertification Program Guidelines and Criteria.

After review of the documents discussed throughout this report, the ARB staff recommends that an Executive Order and a Precertification certificate be issued to the Laser Touch and Technologies, LLC's Laser Touch Model LT-B512.

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY AIR RESOURCES BOARD

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I. INTRODUCTION

This report discusses the Laser Touch model LT-B512 manufactured by Laser Touch and Technologies, LLC, the performance claim to be verified by the Air Resources Board (ARB), the emissions testing results, and the findings and recommendations of the ARB staff concerning this technology.

This report is organized into several sections. The General Information section provides background information on the ARB's Equipment and Process Precertification (Precertification) Program. The next three sections (Summary of Scope, Statement of Claims, and Description of Technology) discuss the breadth of our evaluation, the performance claim, and a detailed description of the Laser Touch model LT-B512.

The Technical Evaluation and Evaluation of Claims sections present detailed information on our technical review and assessment of the Laser Touch model LT-B512. The Quality Management and Environmental Benefits sections provide supporting information on Laser Touch and Technologies LLC technology and a brief assessment of the potential environmental impacts of the technology.

The Recommendations section discusses the ARB staff's determination of the performance of the Laser Touch model LT-B512 relative to the company's claim. The Precertification Conditions section provides guidance with respect to the specific conditions that must be met for

the certificate to remain valid for three years.

Appendix A contains the listing of the information that we relied upon to conduct our evaluation. The remaining appendices contain the detailed information that supports the evaluation in this report.

II. GENERAL INFORMATION

On June 14, 1996, the ARB adopted section 91400 of the California Code of Regulations, which included the Criteria for Equipment and Process Precertification. The regulation became effective on November 30, 1996.

Under this regulation, equipment or processes eligible for Precertification must: 1) have an air quality benefit; 2) be commonly-used or have the potential to be commonly-used in the near future (market ready); and 3) not pose a significant potential hazard to public health and safety and the environment. Furthermore, applicants must demonstrate that they have sufficient control over the manufacturing of the equipment or process to ensure that they can consistently and reliably produce equipment that performs at least as well as that considered in this evaluation.

A. ARB's Equipment Precertification Program Background

Under the Equipment Precertification Program, manufacturers request that the ARB conduct an independent thirdparty verification of performance claims which focus on the air quality benefits of its equipment or process. If the claims are verified, the manufacturer is free to refer to the results of the ARB staff's evaluation in its marketing literature. Upon successful completion of the verification process, the ARB staff notify air pollution control and air quality management districts (Districts) in California of its determination. As a result of the ARB's notification, Districts have an advance opportunity to become familiar with the performance of the equipment or process.

The ARB received a request from Laser Touch and Technologies. LLC that the ARB staff determine if the Laser Touch model LT-B512 was eligible for the Equipment Precertification program. After receiving confirmation from the ARB staff that the Laser Touch model LT-B512 was eligible for the program, Laser Touch and Technologies. LLC submitted a Precertification application package. As part of its review of the application package, the ARB staff evaluated the results of emissions testing programs, and other information concerning the performance of the Laser Touch model LT-B512 to determine whether the claim was verifiable.

B. Relationship to Air Quality

The reduction of volatile organic compound (VOC) emissions from a broad spectrum of activities is part of California's strategy to achieve and maintain healthful air quality. The ARB staff evaluated the ability of the Laser Touch model LT-B512 when attached to a high volume low pressure (HVLP) spray gun to assist painters in reducing paint usage, and thus VOC emissions.

1. VOC Emissions

VOCs are emitted directly as byproducts of incomplete combustion or as fugitive emissions from sources such as painting operations. Painting operations may include automotive and woodworking refinishing; architectural coating; and metal parts and products coating.

Through a series of complex reactions, VOCs function as chemical precursors to the formation of tropospheric (ground-level) ozone. Repeated exposure to ozone may cause permanent damage to the lungs. Even at relatively low concentrations, ozone triggers a variety of health problems including chest pains, coughing, nausea, throat irritation, and congestion. It can also worsen bronchitis, heart disease, emphysema, asthma, and reduce lung capacity. Ozone interferes with the ability of plants to produce and store food. making them more susceptible to disease, insects, and other pollutants.

2. Control of VOC Emissions from Painting Operations

District rules and regulations require emission limits, best available control technology, and inspection schedules to reduce fugitive VOC emissions from commercial painting operations. Some Districts have specific daily, monthly, or annual VOC emission limits for permitted coating operations that, if exceeded, may trigger the requirements for emissions offsets. For example, the San Joaquin Valley Unified Air Pollution Control District's Rule 2201, section 4.5.3 Table 4-1, sets the quantity of VOC emissions that would trigger the requirement for

offsets at 20,000 pounds/VOC per year, while the South Coast Air Quality Management District's level is 4 tons per year.

The options for controlling VOC emissions from commercial painting operations include the use of compliant paints; approved cleaning devices, paint spray booth with filters; add-on air pollution control equipment; and approved paint application devices, such as HVLP spray guns.

An HVLP spray gun operates at a constant high volume of air at low pressure (under 10 pounds per square inch) to atomize the applied coating. Atomizing the coating decreases the bounce-back and blow-by of the coating during the application process. The increased efficiency at which the coating is applied to the target surface reduces the use of paint and thus its associated emissions.

C. Health and Environmental Impacts

As part of its evaluation, the ARB staff conducted a cursory review of the potential health and environmental impacts associated with the Laser Touch model LT-B512. Based on the review of the information in the Laser Touch model LT-B512 Precertification Program application, the ARB staff concluded that the Laser Touch model LT-B512 would not likely present health impacts significantly different from those associated with air pollution control equipment which are currently in wide use for painting operations throughout California.

Please note that Laser Touch and Technologies, LLC, its distributors, and/or operators of the Laser Touch model LT-B512 are required to meet all applicable federal, state, and local laws, rules and regulations with respect to the manufacture, operation, maintenance, sale, and disposal of the Laser Touch model LT-B512.

D. Manufacture/Ownership Rights

The recommendations in this report are contingent upon Laser Touch and Technologies, LLC having the legal rights to produce and/or market the Laser Touch model LT-B512. Laser Touch and Technologies, LLC documented its ownership of these rights in its application package to the ARB, dated August 16, 2001.

III. SUMMARY OF SCOPE

Laser Touch and Technologies, LLC claims that a Laser Touch model LT-B512 attached to a HVLP spray gun can assist painters in reducing the volume of paint used, therefore VOC emission reductions can be assumed.

IV. STATEMENT OF CLAIMS

The following is the claim verified by the ARB staff concerning the Laser Touch and Technologies, LLC 's Laser Touch model LT-B512. The verification of this claim is predicated on the presumption that the Laser Touch model LT-B512 is manufactured, operated, maintained, sold, and disposed of in accordance with manufacturer's instructions.

When using Laser Touch Model LT-B512 with an Accuspray Model 19 high volume low pressure paint

spray gun, in accordance with the Laser Touch manufacturer's instructions, the volume of a single-stage polyurethane enamel application was decreased by an average of 15 percent and therefore a corresponding volatile organic compound emissions reduction of an average 15 percent can be assumed.

V. DESCRIPTION OF TECHNOLOGY

A. Laser Touch Model LT-B512

Laser Touch model LT-B512 is an addon component for paint spray guns. The Laser Touch model LT-B512 is an optical device that assists painters in identifying the ideal gun-to-target paint application distance. Appendix B contains a schematic for the Laser Touch model LT-B512.

The Laser Touch model LT-B512 contains a diode laser, beam splitter, and a reflecting mirror to generate a reference beam and a gauge beam. The reference beam transmits in a fixed forward direction, but the gauge beam is redirected by adjusting the attitude of the reflecting mirror. The reference beam and the gauge beam intersect at a convergence point, which can be repositioned to a selected distance from the nozzle of the spray painting system by adjusting the path of the gauge beam. The painter can identify the ideal gun-to-target paint application distance by locating the convergence point on the surface being painted.

The Laser Touch model LT-B512 weighs 4.1 ounces and can be attached to paint spray guns. The

device is 2 inches (in.) high, 0.75 in. wide, and 4.5 in. long and operates on a single AA lithium 3.6 volts battery. The manufacturer claims that the laser component of the Laser Touch model LT-B512 has an operating life of approximately 12 years of continuous use.

VI. TECHNICAL EVALUATION A. Description of Emissions Testing

In October 1999, a testing program was conducted to evaluate the transfer efficiency of the Laser Touch model LT-B512. The test was conducted at the Iowa Waste Reduction Center's (IWRC) Painting and Coating Compliance Enhancement facility. Testing, processing, and laboratory analyses were performed by IWRC staff under the direction and observation of staff of the United States Environmental Protection Agency (U.S. EPA) Environmental Technology Verification (ETV) Program. The testing, processing, analyses, and calculations were performed in accordance with ASTM Method D 5286-95 Standard Test Methods for Determination of Transfer Efficiency Under General Production Conditions for Spray Application of Paints. (Appendix C contains detailed information about the coating used in the test program. Appendix D contains detailed information about the test results.)

The testing program included locallyrecruited painters who had varying levels of experience and training on the use of HVLP spray guns but no training or experience on use of the Laser Touch model LT-B512. All painters used an Accuspray model 19 HVLP spray gun equipped with a 0.036 in. fluid tip, a 0.036 in. fluid needle, and a number 7 air cap.

The painters were first asked to coat uniform, solid test parts without the assistance of the Laser Touch model LT-B512 (Unassisted Run.) The painters were then given the opportunity to practice with the spray gun and coating in order to become accustomed to the characteristics of the Laser Touch model LT-B512 targeting device. The practice session did not attempt to correct the painters' form or their application method, but rather to provide them with the information necessary to interpret the visual feedback provided by the device. The painters were then asked to coat the same type of parts assisted by the Laser Touch model LT-B512 (Assisted Run.) The parts coated during the Unassisted Run were checked for the same performance criteria as the parts coated during the Assisted Run.

Laser Touch and Technologies, LLC selected Sherwin-Williams Polane HS Plus white single stage polyurethane enamel as the test coating. The coating was mixed 3:1:0.48 with Sherwin-Williams Catalyst V66V55 and Sherwin-Williams Reducer MAKR6K30. The coating was analyzed for viscosity, temperature, density, and solids.

Upon completion of pretreatment, parts were stored until they were needed for testing. The parts were then engraved with an identification number, weighed, and suspended from the conveyor pending transfer into the wet spray

booth. Each part was stationary in the wet spray booth while the painter applied the coating. The paint was generally applied in one coat, but a few painters used a second coat applied in a pattern that was 90 degrees from the first (cross hatch).

The processed parts were moved to the cure oven and force-cured at approximately 80 degrees Celsius for a total of 94 minutes in two stages.

Several process conditions and operational parameters were monitored by the IWRC during the test program. The process conditions were factory and spray booth relative humidity, factory and spray booth temperature, spray booth average air velocity, and average part temperature. The operational parameters were average dynamic input air pressure, average output air pressure at the cap, and average distance to the target.

B. Description of Test Results

The staff of the ARB's Monitoring and Laboratory and Stationary Source Divisions evaluated the results of the testing program submitted by the IWRC.

As shown in Table D-3 of Appendix D, paint usage and VOC reductions were calculated for the Unassisted and Assisted runs. As shown in Table D-4 of Appendix D, the average paint reduction was 15 percent or 0.03 gallons per run. The paint usage reduction corresponds to an average of 15 percent or 0.09 pounds reduction of VOC emissions.

C. Site Visit

As part of our evaluation, we contacted current users of the Laser Touch model LT-B512. One customer was LuminOre, Incorporated of Vista, California where the Laser Touch model LT-B512 was used in the application of various metallic coatings on a wide variety of substrates. These users indicated that they have been pleased with the performance of the Laser Touch model LT-B512 as an assistive device for applying coatings.

VII. EVALUATION OF CLAIMS

This section presents additional information relating to the claim verified by the ARB staff as part of this evaluation report. Our verification of this claim is based on our evaluation of the information listed in Appendix A. As stated earlier, the ARB staff's evaluation and recommendations presented in this report are predicated on the expectation that the Laser Touch model LT-B512 is manufactured, sold, used, and maintained in accordance with manufacturer's instructions.

The claim language is precise because it directly correlates with the supporting documentation included with the application package. Below the claim are supporting comments, which may be used to interpret the significance of the claim verified in this report. To assist the reader, the claim is displayed in bold text.

When using Laser Touch Model LT-B512 with an Accuspray Model 19 High Volume Low Pressure paint spray gun, in accordance with the Laser Touch manufacturer's

instructions, the volume of a singlestage polyurethane enamel application was decreased by an average of 15 percent therefore a corresponding volatile organic compound emissions reduction of an average 15 percent can be assumed.

It should be noted that this device is effective at reducing VOC emissions only to the extent to which a painter provides corrective action in response to the assistive feedback of the Laser Touch model LT-B512.

VIII. QUALITY MANAGEMENT A. Practices and Standards

The Laser Touch model LT-B512 is manufactured exclusively by Laser Touch and Technologies, LLC at their manufacturing facility in Waterloo, lowa. Laser Touch and Technologies, LLC 's quality management practices and standards for the Laser Touch model LT-B512 are described in detail in the Laser Touch and Technology, Total Quality Management Manual.

Except for the laser module, every component used in the manufacturing of the Laser Touch model LT-B512 is custom made or machined. The laser module is custom ordered from a source-specific vendor (see Diagram E-1, Appendix E). Each component is analyzed at the manufacturing facility for a variety of parameters, including laser output and mechanical and electrical integrity. If a component does not meet Laser Touch and Technologies, LLC 's specifications, it is either shipped back to the vendor or remanufactured. Once a component

has been qualified, it is placed in inventory and stored until needed.

The manufacturing process of the Laser Touch model LT-B512 involves a specific sequence of assembly instructions and standards. Mechanical and electrical procedures are incorporated into each sequence. The final inspection contains a series of enforced standards. The inspection adheres to the U.S. Department of Health and Human Services Food and Drug Administration's (FDA) specifications for lasers.

Data sheets throughout each sequence are retained in a workbook at the facility and entered into a computer database for future reference. The data sheet records the inventory, component performance, and other quality assurance measurements. The data sheets and quality assurance measurements are reviewed, and once it is determined that the Laser Touch model LT-B512 meets Laser Touch and Technologies, LLC specifications, it is released for sale.

The ARB staff reviewed the Laser Touch and Technologies, LLC quality management practices and standards as a part of the evaluation of the Laser Touch Model LT-B512. As a result of the review, the ARB staff has determined that the quality management program is sufficiently comprehensive to support precertifying the Laser Touch Model LT-B512.

B. Other Certifications/Approvals

The Laser Touch model LT-B512 meets all FDA requirements for a

Class III A Laser. The U.S. EPA's ETV Program has verified the results of the

test program evaluated by the ARB staff in this precertification.

C. User Manuals/Assembly Instructions

The recommended practices for use and assembly of the Laser Touch model LT-B512 are contained in Operator's Manual: Laser Touch Model no. LT-B512. This document, available at www.lt-t.com, is provided to distributors and users of the Laser Touch model LT-B512. The document provides a description of assembly, recommended usage/handling, maintenance, safety, and trouble shooting. In addition, the website includes updates and tips regarding the operation and advancement of the Laser Touch model LT-B512.

D. Operator Requirements

The Laser Touch model LT-B512 is sold in the United States by distributors or by Laser Touch and Technologies, LLC sales representatives. Laser Touch and Technologies, LLC trains its distributors and sales representatives about the product and its application. The distributors or sales representatives assist customers in determining whether the Laser Touch model LT-B512 will be effective for specific applications. Distributors in some cases may also provide equipment and operators to demonstrate the Laser Touch model LT-B512.

In order to achieve optimal performance, customers must abide by the manufacturers' recommendations

for assembly and operation of the Laser Touch model LT-B512.

E. Warranties

Laser Touch and Technologies, LLC will replace any Laser Touch model LT-B512 product that does not meet manufactured assembly and operating parameters within 90 days of delivery from a Laser Touch and Technologies, LLC facility.

IX. ENVIRONMENTAL BENEFITS

As part of our review, we evaluated the potential air quality impacts of the Laser Touch model LT-B512. The use of the Laser Touch model LT-B512 as an assistive device for an HVLP paint spray gun, in accordance with manufacturer's instructions, has the potential to reduce VOC emissions.

It should be noted that under certain conditions, emissions reductions resulting from the use of the Laser Touch LT-B512 (eg., automotive refinishing operations) may be eligible for emission reduction credits. Eligibility requirements for emission reduction credits include quantifiable, enforceable, and real reductions of VOC's. Individual air districts in California should be consulted to determine potential eligibility for any emission reduction credits.

X. ARB'S RECOMMENDATIONS

After evaluating the information discussed in this report, the ARB staff recommends that the Laser Touch model LT-B512 be Precertified under its Precertification Program.

Specifically, we have independently verified the claim of Laser Touch and

Technologies, LLC concerning its Laser Touch model LT-B512 as presented in the claims section of the report.

By accepting Precertification under the ARB's program, Laser Touch and Technologies, LLC assumes, for the duration of the three-year Precertification period, responsibility for maintaining the quality of the manufactured equipment and materials at a level equal to or better than was provided to obtain this Precertification. Precertification under the ARB's program is also contingent on the recipient agreeing to be subject to quality monitoring by the ARB, as provided by law.

The ARB makes no express or implied warranties as to the performance of the manufacturer's product or equipment. Nor does the ARB warrant that the manufacturer's product or equipment is free from any defects in workmanship or material caused by negligence, misuse, accident, or other causes. The ARB staff believes, however that Laser Touch and Technologies, LLC's Laser Touch model LT-B512 will achieve the performance levels presented in the claims section of this report. Our determination is based on our evaluation of the data submitted by Laser Touch and Technologies, LLC, as well as the other information identified in this report. Our recommendations are predicated on the expectation that assembly and application are performed in accordance with the manufacturer's instructions contained in the document

entitled <u>Operator's Manual: Laser</u> Touch Model no. LT-B512.

XI. PRECERTIFICATION CONDITIONS

The recommendations in this report are conditional upon the Laser Touch model LT-B512 being manufactured, operated, maintained, sold, and disposed of in accordance with manufacturer's instructions contained in the document entitled Operator's Manual: Laser Touch Model no. LT-B512. A copy of this document must be provided to each distributor and user of the Laser Touch model LT-B512, prior to its use for any paint spraying operation. In order for the Precertification to remain valid. Laser Touch and Technologies, LLC must retain the manufacturing rights for the Laser Touch model LT-B512.

Precertification does not relieve the person constructing, installing or operating the equipment at each specific site from the requirement to obtain an authority to construct and permit to operate. Precertification does not relieve the person from compliance with any local air district rules or regulations.

Any manufacturer's modification that affects the claimed performance or emissions of the Laser Touch Model LT-5B12 shall void this Precertification. This Precertification is only valid for the Laser Touch Model LT-B512 that was designed and tested for this evaluation.

APPENDIX A MATERIALS AVAILABLE FOR EVALUATION

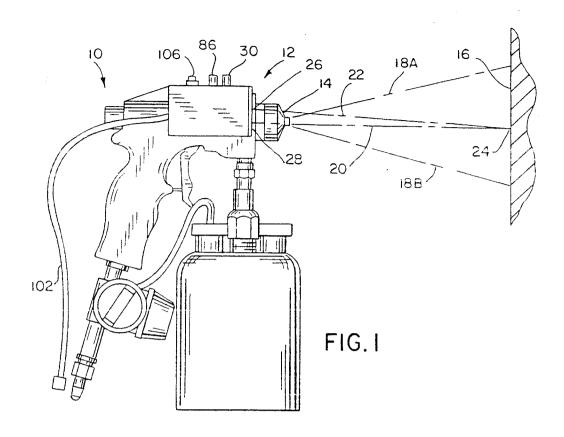
MATERIALS AVAILABLE FOR EVALUATION

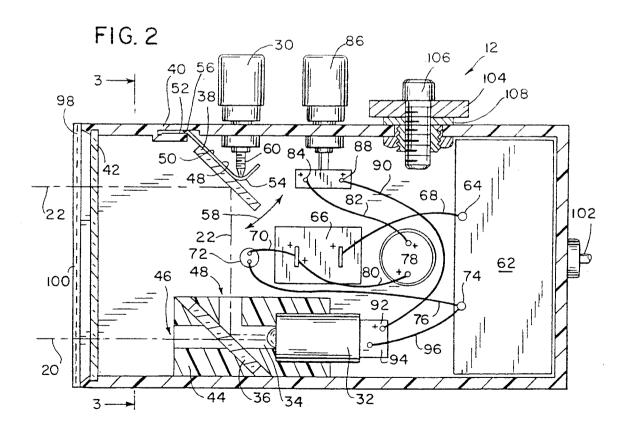
- Letter from Mr. Richard J. Klein of the Iowa Waste Reduction Center to Ms. Tam Doduc of the Air Resources Board's (ARB) Office of Environmental Technology requesting determination of eligibility of the Laser Touch™ coating application technology for the ARB Equipment Precertification Program, January 26, 2001 (received by ARB on February 6, 2001).
- 2. Memorandum from Ms. Tam Doduc of the ARB's Office of Environmental Technology to Mr. Todd Wong of the ARB's Stationary Source Division notifying him of the need to discuss the eligibility of the Laser Touch[™] coating application technology for the ARB Equipment Precertification Program, February 20, 2001 (received by the ARB on February 26, 2001).
- 3. Memorandum from Mr. Todd Wong of the ARB's Stationary Source Division to Ms. Tam Doduc of the ARB's Office of Environmental Technology confirming that the ARB had received the Eligibility Request forms from Laser Touch & Technologies, Inc., March 1, 2001.
- 4. Letter from Ms. Tam Doduc of the ARB's Office of Environmental Technology to Mr. Richard J. Klein of the Iowa Waste Reduction Center notifying him that the Laser Touch™ coating application technology is eligible to participate in the California Environmental Technology Certification Program, March 14, 2001 (received by the ARB on March 21, 2001).
- 5. Letter from Mr. Richard J. Klein of the Iowa Waste Reduction Center to Ms. Tam Doduc of the ARB's Office of Environmental Technology providing supplemental information for the Laser Touch™ coating application technology, January 26, 2001 (received by the ARB on April 25, 2001).
- 6. Memorandum from Ms. Tam Doduc of the ARB's Office of Environmental Technology to Mr. Todd Wong of the ARB's Stationary Source Division confirming they have received supplemental information for Laser Touch & Technologies' eligibility request, April 25, 2001.
- 7. Memorandum from Mr. Todd Wong of the ARB's Stationary Source Division to Ms. Tam Doduc of the ARB's Office of Environmental Technology verifying ARB will be the lead agency to review the performance claim of the Laser Touch™ coating application technology, May 15, 2001.
- 8. Letter from Ms. Tam Doduc of the ARB's Office of Environmental Technology to Mr. Nick R. Horan of Laser Touch and Technologies notifying him of the need to discuss next steps in the evaluation of the technology, May 16, 2001 (received by ARB on May 17, 2001).

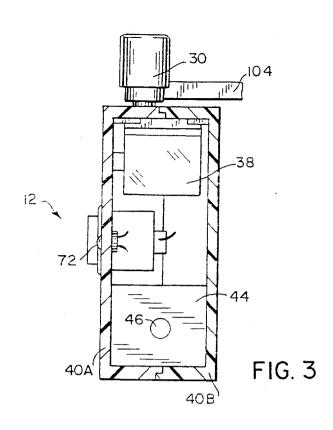
- 9. Memorandum from Mr. Mike Tollstrup of the ARB's Stationary Source Division to Mr. George Lew of ARB's Monitoring and Laboratory Division requesting review of the test report, July 26, 2001.
- 10. Letter from Ms. Kitty Martin of the ARB's Stationary Source Division to Mr. Richard J. Klein of the Iowa Waste Reduction Center confirming that the ARB had received it's Eligibility Request and that the Laser Touch® System may be appropriate for precertification, July 30, 2001.
- 11. Letter from Mr. Nick Horan of Laser Touch and Technologies to Mr. Hafizur Chowdhury of the ARB's Stationary Source Division submitting an application for certification for the Laser Touch LT-B512, August 13, 2001 (received by the ARB on August 16, 2001.
- 12. Memorandum from Mr. George Lew of the ARB's Monitoring and Laboratory Division to Mr. Mike Tollstrup of the ARB's Stationary Source Division verifying the review of an "ETV Joint Verification Statement" and an associated "Environmental Technology Verification Report" for Laser Touch and Technologies, August 20, 2001.
- 13. Letter from Ms. Kitty Martin of the ARB's Stationary Source Division to Mr. Richard J. Klein of the Iowa Waste Reduction Center confirming that the ARB had received it's application package and application fee, and that the application was sufficiently complete, August 24, 2001.
- 14. Letter from Mr. Richard J. Klein of the Iowa Waste Reduction Center to Mr. Hafizur Chowdhury of the ARB's Stationary Source Division submitting the Quality Management manual for Laser Touch and Technologies, August 13, 2001 (received by the ARB on September 26, 2001).
- 15. State and Territorial Air Pollution Program Administrators and the Association of Local Air Pollution Control Officials (STAPPA/ALAPCO). <u>Air Quality Permits: A Handbook for Regulators and Industry</u>, Volume II (May 30, 1991): 14-1 to 14-30.
- 16. National Defense Center for Environmental Excellence, prepared for the United States Environmental Protection Agency, "Environmental Technology Verification Report: Laser Touch and Technologies, LLC, Laser Touch™ Model LT-B512", (May 2000).

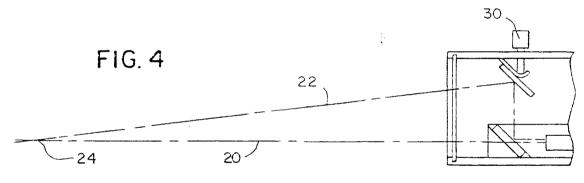
APPENDIX B

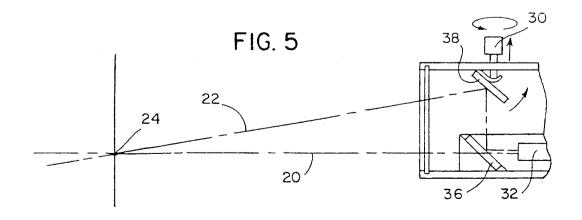
LASER TOUCH MODEL LT-B512 DESIGN SCHEMATICS











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APPENDIX C

SHERMAN-WILLIAMS MATERIAL SAFETY DATA SHEETS

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Carpon Black is classified by IRRG as popsibly carcinogenia to humans (growy 28) tased on experimental arised office incover, there is insufficient syndshage in humans to: its cardinages

Crystalline Silica (quarte, cristobalita) is liated by INRC and MRP. Ermy test capesure to Crystalline Silica duct, which can occur only when sanding or abrading the duy film, may cause lung damage (silicacis) and possibly cancer.

Mathyl Ethyl Worden may increase the marvace system effacts of other solvants.

Proloqued operations to solvant ingraduals in Section 2 may cause considerate to proloque to solvant ingraduals in Section 2 may cause considerate to person in the insurance in the insertive to isocyanates will experience increased alleration on repeated.

Reports have ausnovated repeated and probonged dyagempseure to solven's with parmenent litera

Section 6 -- Reactivity Data

STABILITY - Stable

CONTRIONS TO AROTO Content, Alcohols, Amines and other compounds which really with isocyonates. Contentnation with Merer, Alcohols, Amines and other contentnation with Menselve in Jangarons pressure in, and possible Entering or, closed contentnates.

By fire: Carbon pivetde, Carbon Bonaride, Oxides of Bitropan, postiboliny of Mydropen Cychide Hazakbous Polynastzar(fit - 411) Not Occur None known. HEZERSOUS DROOMPOSIYEDR WEDNICKS

Section 7 — Spill Or Leak Procedures

F63821

STEPS TO BE SAKEN IN CASE RAIGHIAL IS RELEASED OF SPILLED REMOVE ALL SOURCES OF AGRICION. VERLIAMEN THE MESS. REMOVE WITH INSCRIBENT RASEE DISPOSEL MERROR

Slower than Bthan Reseries then Air N.A.

SOUTH IN MARKET EVAPORATION RATE

MELTING POINT

waste from these products may be havandous as defined under the Resource Corservation and Recovery Act (ROFA) 30 CRR 261. Waste must be trated for ignitability to decurate the epplicable BPA haramidus waste numbers. Waste from products containing Methyl Kthyl Aprone New

Dispose of in inclustrate in approved facility. To rat inclustate closed container, lecordance with Federal, State, and Local regulations regarding politibles. also require extractability testing, incinerate in approved facility.

Section 3 - Protection Information

PRENDUTIONS TO BE TAKEN IN USE NO PERSON SMOTHEL USE PUBSE PHODUCTS, OR BY IN THE AREA WHERE PHEN ARE BEING USED IT THEY HAVE CREONIC (LONG-TEEN) INGE ON BREENHING PROSIENS OR IP THEY ENAM HAD A REMUTION TO ISOUTHAN

Avoid breathing veptr and spray mist. Avoid contact Use only vith adequate ventilation. Avai h skin and eyes. Wash hands after using.

with skin and eyes. Wath hinds after using.

The skin and eyes. Wath hinds after using.

The secontings may contain paterials cleasified so majeunce particulates (listed "as Dust" is sertion; 2) which say be present at heavidous lawls only during sanding or shreding of the driving style present at heavidous lawls on the spacific of the specific dusts are listed fills upplicable limits for missence dusts are known to a law and in Section; the specific hile in missence fought at Mr. 16 may. In Section 1 mg./m3 (respirable Exection), OSHA PE: 18 mg./m3 (total dust; 5 mg./m2 (respirable Exection).

Sher

nocal exhaust preferably. General exhaust acceptable if the exposure to matarials in Section 2 is maintained below applicable exposure limits. Rufer to CSBA Standards 1910.94. 1910.107, 1910,108. VEASTLASTICH

1,88

phase oversprey is present, a positive present air supplied respirator (TC18C NICEH/MSH) approved should be vern. If unavailable, a properly fitted overly experied vapor/particulate respiration approved by WIOSH/MSH for protection against materials in Section 2 may be effective, uppraying about any selections. The wasterness in the whole time of approving and until all vapors end mists are gone. No PRESONS SHOULD BE ALLOSS IN THE AREA WHIERS, WHIERS FRIS PROMINERS.

when sanding or abrading the dried film, wear a dust/mist respirator approved by NTOSH/MERA for dust which may be generated from this product, underlying paint, or the abrasive. PROSENTING GLOVES

kear glowss which are recommended by glove supplier for proteotion against naterials in Secrion

EVE PROJECTION - Near safety speciales with urperformed sideshields. OCHER PROFECTIVE BULTIMEAN - Dea Derrier cream on exposed Akin.

Section 9 — Precoultons

DOC STORBAGE ORPHORE. See TABLE

1. PRECIDITIONS TO BE TARKE IN HARGEING AND STORING

1. Reap avery from heat, sprace of the flame.

1. Neap avery from heat, sprace and until all vapors are some: Keep area vantaleted - Do not smake -
anglesively. During use and until all vapors are some: Keep area vantaleted - Do not smake -
Extenguish all flames, paint lights, and besters - Turn off stowes, electric tools and approach

ances, and any other sources of agriculation

chanile Refar Doce, Wes approach Bonding and Grounding procedures.

Neep container closed When not in use, "Transfer only to approved containers with complete

and appropriate labeling. Do not teke internally. Resp out of the reach of children.

These produces must be mixed with other components before use. Before epaning the packages, RMD AND FOLICW WARNING LABRES ON ALL COMPONENTS.
Inventional misuse my deliberately concentrating and inhaling the contenus can be harmful OFFICE PRECEDENCE

Section 10 -- Other Regulatory Information

MARNING: FRIFZII contains a chamical known to the State of California to cause cencer. Prilli and V68V55 contain themicals known to the State of California to cause cencer and birth defects or other reproductive berm. CALIFORNIA FROPOSITURON 65

THIS CHRITEPICATION

All chemicals in those products are listed, or are exempt from listing, on the ISCA

The above information pertains to these products as currently formulated, and is based on the information swallable at this cime. Addition of reducers or other additives to these attention to the products. Since these of the products. Since the products, Since the difference of the products. Since the difference of the products. Since the difference of the products. Since the difference of the products on the products of the p



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The Sherwin-Williams Co. 101 Prospect Ave. N.W. Cleveland, OH. 44115

Energency telephone number information felephone number bate of preparation

(216) 556-2917 (216) 566-2902 September 1, 1997 @1997, The Sherwin-Williams Co.

どのくまるのの記されてい								701-700	A Bar
202 200		MAK PBK 30	Cyclohaxanone ReK32	K69 Thinner R7 K 69	K84 Thinner H7 K 84	K94 Thinner n7 K 94	Røtarder R7 K 216	Reducer R7 K B29	Reducer H7 K B60
CAS No. Hozoricki ingredient		837		5307ES-2138 530-2146 830-2641	530-2153 530-2151 530-2658	530YES-2179 530:2187 530:2866	% ₩ ₩	yes	***************************************
	7.00 cms (0.04)	The second second of the second secon	-	2 1	2.0	30	Control of the contro	12	
103-88-8 9 Tolliene.	150> PPM (BRift) 64 100 PPM 7	The state of the s	And the second s	6	The state of the s			-	
100-41-4 * Ethylbenzene	7800	er i de granden de como como en estadores de como de c	And the second s	52			ই	E.	ar labol to the same of the sa
1330-20-7 Xylene.	N Mad	The second secon	And the second s			25		59	21
78-03-3 8 Mathyl Etnyl Kalone.	5000× 77 m		and the second s	24	Annual Colonia, and the state of the state o				
108-10-1 § Methyl Isohutyl Katone.	4784 4787 PPM		The second section is the second section of the second section of the second section of the second section sec						35
110-43-0 Methyl n-Amyl Kelone.	50 100 PPM 2.1	100	And the second s		AND THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED I	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	71	9	
1	25 25 PPM (Skin) 2.0		00)	16					00
December 1	250 250 PPM 47 B				35	2.7	Commence of Comments of the Co		E. L.
108-21-4 Isopropyl Acsiste.			And in the second of the secon		45	28	24	15	22
123.86-4 n-Butyl Acetale.	4260> <200>		And the last of th	2 64	7.95	7.09	7.68	6.92	38,85
Walent per Gallon (lbs.)	The same of the sa	6.76	1.85	10.1	A 6 T	7.09	7.68	6.92	6.95
VOC (Volatile Organic Campounds) - 105/0af	ppounds) - lbs./gaf.	9/3	28.7	00.7	en,	No.	No	No	No
Photochemically Reactive	The state of the s	0,1	No	000	11 20	10	95	30	30
[년] 1910년		100	111	36	30	4		a	9
The All Mark of the Control of the C	The second secon	ev.	04	ğ.	15	91	7	,4	
Alogaina egelola (CO	(Mary cartie - Combistible)	Combustible	Combinstible	Fismmable	Fismmable	Flammable	Flammable	Flammable	Flammacie
Flamering Classification	Flamman Character (Training)	9.2.0	086	230	230	230	330	830	230
IIMIS (NFP4) Rating (heal)	HMIS (NFPA) Rating (health - Harmpaning - reactivity)	1	And the second s	O SO ONE DEL OL CALLES DE LA CALLES DEL CALLES DE LA CALLES DEL CALLES DE LA CALLES DEL CALLES DE LA CALLES D	ALC OF A	372 85 C			
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Singredient subject to the reporting requirements of the Superting Amendments and Reauthorization Act (SARA) Section 313, 40 CFR 372 85

** MSDS Text Page Follows

123.21

- Section 1 -- Product Identification

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POLANE® Reducers

Section 3 - Physical Data 984 TABLE 0.81-0.95 FROUNCE MEDGHT

174-320 °F SZECIFIC GPATITY SCHAMILE VOLUME BOILING RAMGE

Lauwer than Ether Heevaar than Air N.A. EVAPORATION BATE VAPOR DENEITY HELLING FOLMS' SOLUELLITY IN MATSR

Section 4 -- Fire And Explosion Hazard Data

737 5en 7755 FLASH POINT MOTURALIZATION CIVERIETENTANION SWE TABLE SXTINGUISHING KEDIA

CEL

1007 Carbon Dickide, Dry Chemical,

NAMELY FIRE AND EXPLOSION MANAGES

Neep containers tightly closed issiste from hear, slectrical equipment, sparks, and open
Neep containers tightly closed issiste from hear, slectrical equipment, sparks, and open
(lase observables may septembed when the exposed to extreme hear, abplication to but
surfness requires syecial prespublicas. Drawing energies of conditions ownersposing to
becomposition products may cause a health heard. Syngtons may not be immediately dipplicant.
Chenton medical breathing.

Fight of the fight of the fight.

Fight protective equipment including self-contained breathing apparatus should be used.

Full protective equipment including self-contained breathing apparatus should be used.

Factor and a lossed containers to prevent present presents and possible subciquition or
explacion when exposed to synteme hear.

Section 5 - Health Hazard Data

SOUTH OF EXPOSURE

Exposure may be by IGHALVICH and/ox SYIH or DVE contact, Repending on conditions of use to misinfre exposure, follow recommendations for proper use, ventilistion, and plersons.

protective aquipment. ACUTE Health Hazards

Rashache, dizziness, nauset, and loss of coordination are indications of excessive supposue

to vepore of spray nicks. Paroing sensation may indicate eye or excessive skin autiform redoms and inching or paroing sensation may indicate eye or excessive skin autiform redoms accessive skin autiform.

Name generally recognized.

Breastry AND There als procedures.

If Affected, remove if on BNIN.

Mash affected area to a BNIN.

If affected, remove from exposurs. Restore presching, Wasp Wayp and quiet, Wash affected, remove from this scap and water.

Assort conteminated charming and handed before acuses. These years with large anomns of water for 15 minutes. Gat madical vicantiation. Navae give arching by anomns of water for 15 minutes. Gat madical vicantiation, drive conscious patient several glasses of vater. Stok hubbers. If in EYES:

strention. CHRONIC Heath Hazards

so incredient in these products is an IARC, MF or USBA Lished carelenged permuent brain pegares have associated repeated and protonged overexposure to solvents with permuent brain protective by exceptions to solvent ingredients in the following produces of solvense and nervous system demage

liver, urinary effects to organ systems. * Cyclobeamone & Methyl Anyl Ketons

urinary eardionseculer, reproductive urinary, alsos forming respective urinary, these forming saraionsecular liver, Retaider R7K216 * girets, ked rhinner & K34

eardionanculas, reprocuesses

Section 6 -- Reactivity Data

STABILITY - Stable CONDITIONS TO AVOID

None Phown.

None known. HAZANDOUS DECOMPOSITION REDOUGTS

By time: Genton Dioxide, Cenhon Monoxide HAZARDOUS POLYMENIZATION - Mill Not Occur

Section 7 — Spill Or Leak Procedures

Ventilata and remove with inext abstrant. SIEDS TO DE DUERT IN CASE MANDRIAL IS RELEASED OR SPIELED REMOVE ALL ROUXCES OF AGRICION. Ventilata and remove wingous dispessal METHOD

Heate from these products may be hazardove as defined under the Resolver Conservation and Revoyacy Act (RCBA) 40 CFM 251. Waste must be tested for ignitability to determine the applicable Bri heatedown waste mustered missers, Marke from products containing Methyl Schyl Ketone may also require heating for extractediality.

Inchmerate in Approved Escility. To not inclination reset containing test of in

thotherese in Approved fecility. To not inclustate closed canteliner, schardence with Federal, State, and focal regulations refatiling pollution.

Saction 8 - Profection Information

Avord contact Avoid breathing vopox and cural math. FRENATIONS TO 25 TAKEN IN USE The only with adequate ventilation. Avoid the alin and eyes. Wash hands after using. Whitsafilus

Local empust preferable. Seneral exhaust acceptenta if the exposure or untertain in second of the sendando 1910,84.

If personal empagner cannot be committed bythe similarble itemization, when a property fitted against employed by INCSF/HSHA for protection system materials in Section II. RESPIRATORY PROTECTION

wear gloves which are recommended by glove supplies for provestion sealast maserials in

Els profesion. Herr safety systemater with unperfornted sidesphelds.

Saction 9 -- Precoutions

DUT, STOPHICE CHARGES IN MEDICAL AND STOPING.

PRESENTATIONS TO AS THESE IN MEDICAL CORN FLOWS.

RECON AND ASSET, SPANKE, MEDICAL CORN FLOWS.

PRESENT USE WHI UNELL ALL VERGES AND SOME RECONDESS, WHICH WAS THE STOPING TO BE SHOWN THE STOPING TO SHOW THE SHOW THE STOPING TO SHOW THE SHOW TH

Intentaced misuse by deliberately consentrating and incelang the contents can be Dannial of Rest.

Section 10 - Other Regulatory Information

the *CALLEDVILA PROPOSITION AS MEDINES*. 284 Thinnes. 254 Thinnes and ENESS concein shemiselve known to take the 195 Thinnes, 284 Thinnes, 284 Thinnes, 284 Thinnes, 284 Thinnes, 284 Thinnes, 284 Thinnes, 285 Thinnes,

All chemicals in these products are listed, or and amount face listing, on the Investory. TECH CEPTIFICATION

the shows information perceipe to those products as currently formulated, and is based on the information evaluate at this time. Addition of additives or other costings mererials to remember any substantiably elser the camposition and heaving of the products. Since oraditions of the products. Since oraditions of the are othered on control, we make no warrenties, we express or implied, and senume no liability in connection with any use of this information.

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FROM : SHERWIN-WILLIAMS CEDAR FALLS_ FAX NO. : 319 277 6277

Aug. 22 2001 11:11AM P1

MATERIAL SAFETY DATA SHEET

RAKBA 25 200

Bestion I - PRODUCT AND COMPANY INENTIFICATION

PRODUCT NUMBER

RSK 38

HMIS CODES

Health

Flammability

Reactivity

PRODUCT NAME

Methyl Amyl Ketone

MANUFACTURER'S NAME

THE SHERWIN-WILLIAMS COMPANY 101 Prospect Avenue N. W.

Cleveland, OH 44115

DATE OF PREPARATION

22-AUG-01

EMERGENCY TELEPHONE NO.

(216) 566-2917

INFORMATION TELEPHONE NO.

(216) 566-2902

Section 2 -- COMPOSITION/INFORMATION ON INGREDIENTS

% by WT

CAS No. INSREDIENT UNITS VAPOR PRESSURE

118-43-8 Methyl n-Amyl Katone.

AGSIR TLV 50 ppm

JOSHA PEL 100 pps AS THE PERSON NEW PROCESS OF THE PERSON NEW

Section 3 -- HAIARDS IDENTIFICATION

ROUTES OF EXPOSURE

Exposure may be by INMOLATION end/or SKIN or EYE contact, depending on conditions of use. To minimize exposure, fallow recommendations for proper use, ventilation, and personal protective equipment, EFFECTS OF OVEREXPOSURE

Irritation of eyes, skin and respiratory system. May cause mervous eystem depression. Extreme overexposure may result in unconsciousness and passibly death.

SIGNS AND SYMPTOMS OF QUEREXPOSURE

Headeche, dizziness, nausea, and loss of operdination are indications of excessive exposure to vapors or apray sists.

Redness and itching or burning sensation may indicate eye or excessive skin exposure.

MEDICAL CONDITIONS AGREDUATED BY EXPOSURE

None generally recognized.

CANCER INFORMATION

For complete discussion of toxicology data refer to Section 11.

Section A -- FIRST AID MEASURES

Accession in Indian

FROM : SHERWIN-WILLIAMS CEDAR FALLS... FAX NO. : 319 277 6277 Aug. 22 2001 11:12AM P2

Page 2

If INFALED: If affected, respice from exposure. Restore breathing.

Keep warm and oulet.

If on SKIN: Wash affected area thoroughly with soap and water.

Remaye contestinated clothing and launder before resuse.

If in EYEB: Flush eyes with large emounts of water for 15 minutes.

Get medical attention.

If SWALLOWED: Do not induce veniting.

Get sedical attention immediately.

Section 5 — FIRE FIGHTING MEASURES

FLASH POINT LEL UEL 100 F PMCC 1.1 7.9

FLAMMABILITY CLASSIFICATION

Combustible, Flash above 39 and below 200 F EXTINGUISHING MEDIA

Carbon Dioxide, Dry Chemical, Foes UNUSUAL FIRE AND EXPLOSION HAZARDS

Keep containers tightly closed. Isolate from heat, electrical equipment, sparks, and open flame. Closed containers may explade when exposed to extreme heat. Application to hot surfaces requires special precautions. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

Full protective equipment including self-contained breathing appearatus should be used. Water spray say be ineffective. If water is used, for nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

Section & - ACCIDENTAL RELEASE MEASURES

STEPS TO BE TRKEN IN CASE MATERIAL IS RELEASED OF SPILLED

Remove all sources of ignition. Ventilate and remove with inert absorbent.

Section 7 — HANDLING AND STURAGE

DOL STORAGE CATEGORY

é

PRECOUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Contents are COMBUSTIBLE. Keep away from heat and open flame. Consult NPPA Code. Use approved Bonding and Grounding procedures.

Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally, Keep out of the reach of children.

Section B -- EXPOSURE CONTROLS/PERSONAL PROTECTION

PRECAUTIONS TO BE TAKEN IN USE

Use only with adequate ventilation. Avoid breathing vapor and spray mist. Avoid contact with skin and eyes. Wash hands after vaing.

Paul Garand no marin 2

FROM : SHERWIN-WILLIAMS CEDAR FALLS_ FAX NO. : 319 277 6277 Aug. 22 2881 11:129M P3

REKER

Eage 3

VENTILETION

Local exhaust preferable. Beneral exhaust acceptable if the exposure to reterials in Section 2 is saintained below applicable exposure listes. Refer to OBMA Standards 1910.94, 1910.107, 1910.108. RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSMO for protection against materials in Section II.

When sanding or abrading the dried film, wear a dust/wist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive.

PROTECTIVE GLOVES

Wear gloves which are recommended by glove supplier for protection against meterials in Section 2.

EVE PROTECTION

Wear safety spectacles with unperforated sideshields. OTHER PRECRUTIONS

Intentioned misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT 5.75 lb/gal 1\a bis SPECIFIC BRAVITY 0.91297 - 308 F (147 - 158 D BOILING PHINT WELTING POINT eldaliava fun VOLATTLE VOLUME 1000 % STAR HELTRACHAND Slower than ether VAPOR DEMSITY Heavier than air SOLUBILITY IN WATER N. A. VOLATILE ORGANIC COMPOUNDS (VOC Theoretical) 5.76 lb/gal SIM g/l Less Federally Exempt Solvents

6.76 lb/gal 810 g/l Emitted VOC

e. /e ib/gal 81% g/i Ekitted VIII

Section 10 - STABILITY AND REACTIVITY

STABILITY - Stable CONDITIONS TO AVOID

None known.

INCOMPATIBILITY

None known.

HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide HAZARDOUS POLYMERIZATION

Will not occur

Section 11 — TOXICOLOGICAL INFORMATION

CHRONIC HEALTH WAZARDS

No ingressent in this product is an IARC, MTP or OSHA listed carcinogen.

Prolonged overexposure to solvent ingredients in Section 2 may cause adverse effects to the liver and uninary systems.

Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

TOXICOLOGY DATA

Character was a second of the second of

FROM : SHERWIN-WILLIAMS CEDAR FALLS... FAX NO. : 319 277 6277

Aug. 22 2001 11:13AM P4

2000 4 ROKEU Ingredient Mass hednyl n-Anyl Kedone. 110-43-0 LCDS RAT AMR Not Established LDEG RAT 1670 mo/kg NO. AND AND MAN PROPERTY OF THE PROPERTY OF TH Section 12 -- ECOLOGICAL INFORMATION ECOTOXICOLOGICAL INFORMATION No data available. Section 13 - DISPOSAL CONSIDERATIONS WASTE DISPUSAL METHOD · Waste from this product may be hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Waste must be bested for ignitability to determine the applicable EFA harardous waste bumbers. Incinerate in approved facility. Do not incinerate closed container. Dispose of in Accordance with Federal, State/Provincial, and Local requistions regarding pollution. A SECOND STORY OF THE SECO Section 14 -- TRANSPORT INFORMATION The SECTION CONTROL OF THE PROPERTY OF THE PRO Na deta available. Section 15 -- REBULATORY INFORMATION ARE SELVING AND AND THE PROPERTY OF THE SELVING AND AND ARE SELVING AND ARE SELVIN SARA 313 (46 DFR 378.650) SUPPLIER NOTIFICATION CHEMICAL/COMPOUND A by MT & Element CAS No. مستنية وأجود فأحاري فجور فلادر فودر ويون والآم كهجو إزامي لينبأ إضارة والإل ومسهالكم كالمن الحاك تمتمناهما مبسد المستسبس No ingredients in this product are subject to SARA 313 (40 CFR 372,650) Supplier Notification. TSCA CERTIFICATION gaifeail agest tagaske are no beteil are listed, or are tagaske are listail on the TSCA Inventory.

Section 16 - OTHER INFORMATION

The above information pertains to this product as currently formulated, and is based on the information evailable at this time. Addition of reducers or other additives to this product may substantially after the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

÷ .



CHEMICAL COATINGS"

POLANE® HS Plus Polyurethane Ename

District	FE3E60	
Orange		
Green		
Blue		
Hi Hide Organic Red	F63R62	i

Red Calde	F63R64
Magenta	F63R65
Brite Red	F63R66
Silver	F63S65
Clear	. F63V67

V/hite	F531468
Hi Hide Opaque Yellow GS.	F63Y63
Hi Hide Organic Yellow RS.	
Yellow Oxide	F63Y68
Catalyst	V66V55

DESCRIPTION

POLANE" HS Plus Polyurethane Enamel is a two component coating providing high gloss, excellent exterior durability and resistance, properties along with high volume solids and 2.8 VOC compliance. The single pigment colors are designed for intermixing to achieve great versatifity in color matching capability.

Advantages:

- · Under 2.6 VOC with Polane HS Plus Catalyst V6SV55
- · Excellent exterior color and gloss retention with VSEV55 catalyst
- Excellent exterior physical and chemical performance properties
- Excellent appearance over many types of metal and plastic substrates
- ideal coating for machine (odl industry with resistance to most lubricants and cutting oils
- High solids high spreading rate
- Air dry or force dry curing
- Full range of colors may be custom blended
- · Excellent hardness and impact resistance
- Excellent mar and abrasion resistance
- Apply by conventional, airless, air assisted aidess, HVLP or electrostatic
- Much faster drying times acheived with the use of infratherm type ovens
- For interior use, Polane HS Plus may be catalyted 2:1 with Polane Plus Catalyst V66V44 and reduced 24%
- Free of lead and chromate hazards

CHARACTERISTICS

Valume Solids:

Full, 90+ units $59 \pm 2\%$

catalyzed and reduced, may vary by color Viscosity: catalyzed and reduced

18-27 seconds #3 Zahn Cup Recommended film thickness: Mils Wet 2.0 - 2.5 Mils Dry: 1.25 - 1.5 Spreading Rate (no application loss)

in I mi dit 340-960 so ft/cal Air Drying (1.5 mile dit, 77°F, 50% RM);

To Touch

1-114 hours 10-12 hours To Handle:

Tack Free: To Recoat: 8 hours 5-6 hours

Force Dec 30-60 min, at 140-180°F Curing temperature must not exceed the heat distortion temperature of the plastic substrate.

infratherm over schedule to lack free; (Flash off 1 minute)

1.5 fb Gas: 3 min., 2.5 fb Gas:7 min.

Mixing Retio: 3 pan

1 part

Potane HS Plus Catalyst V69V55 MAK R6K30

0,48 part (12%) Pot Life:

3 hours

Accelerated Drying:

Add up to 1 ounce of Polane Accelerator, V66VB11 pergallon of Polane HS Phis.

To Touch: To Handle: Tack Free!

30-50 minutes 2-3 hours 1-2 hours

To Recoat Force Dry:

1-11% hours 30 min. at 140-160°F

Mixing Ratio: S part

マット・ナラ テイス Polane HS Plus

f part

including Accelerator Catalyst V66V55 MAK R6K30

0.48 part (12%) Pot Life:

1 hour

Flash Point

95"F Sets Flash Closed Can

Package Life;

2 years, unopened

Air Quality Data:

Non-photochemically reactive Volatile Organic Compounds (VOC)

as packaged, maximum 2.8 b/gat 335 g/L

catalyzed and reduced as above, maximum

2.6 b/gal, 336 g/L An Air Quality Data Sheet is available from your local Shankin-Williams facility.

SPECIFICATIONS

General: Substrate should be free of grease, oil, det, fingerprints, drawing compounds, any contamination, and surface passivation treatments to ensure optimum achesion and coaling performance properties. Consult Metal Preparation Brochure CC-T1 for additional de-

Aluminum, untreated: Prime with industrial Wash Primer, P60G2, or Kem Agua Wash Primer, E61G520, followed by Polane Plus Sealer, E65A71 or 2.8 VOC Catalyzed Epoxy Printer, E61A280.

Galvanized Steel, untreated: Prime with Industrial Wash Primer, P60G2, or Kem Aqua Wash Primer, E61G520, followed by Polane Plus Sealer, E65A71 or 26 VOC Catalyzed Epoxy Primer, E61A280.

Plastic: Oue to the diverse nature of plastic substrates, a costing or coating system must he tested for acceptable adhesion to the substrate prior to use in production. Reground and recycled plastics along with various fire retardants, flowing agents, mold release agents, and loaming/blowing agents will affect coating adhesion. A filter or primer/barner coat may be required. Please consult your Sherwin-Williams Chemical Coatings Sales Representative for system recommendations. Steel or Iron: Remove fust, mil scale, and axidation products. For beat results, treal the surface with a proprietary surface chemical treatment of zinc or iron phosphate to improve conosion protection. For untrested metal: Prime with Industrial Wash Primer, P60G2, or Kem Agua Wash Primer, E61G520, followed by Polane Plus Sealor, E65A71 or 2.8 VOC Catalyzed Epoxy Primer, E61A280. For best corresion resistance, prime treated steel with Polane Plus Sealer, E65A71 or 2.8 VOC Catalyzed Epoxy Primer, E61A280. Wood (interior only): Must be clean, dry, and

Testing: Due to the wide variety of substrates, surface preparation methods, application methods, and environments, the customar should test the complete system for adhesion and compatibility prior to full scale ap-

finish sanded. Seal with a full coat of Polane

28 Plus SpreyFI, D61H75.

CC-020

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continued on bac

POLANE® HS Plus Enumel

Section III -- PHYSICAL DATA

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PRODUCT MEXANT - See TABLE SPECIFIC CRANTY - 0.8-1.3 BOILING PARCE - 723-395 59 FOLSMER FOLSMER - 78-100 %

Sention IV — FIRE AND EXPLOSION HAZARD DATA

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Section V HEALTH MAZARD DATA

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SPICIEM VI - REACTIVITY DATA

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covers MSDS page F63J/1 and F63J/2

Section VII -- SPALL OR LEAK PROCEDURES

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For colors and reputers, second with their bearenbest in in Teachen Will. Cover spill for takinger, all parasonal in the east should be perheaded in Teachen Will. Cover spill (All parasonal in the east should be perheaded another meterial. Descrives spilled nother and editorial sources. Colors second for the spill another spilled to operate the spill of the spill and more annother. Cover spill design the spill and with roup and water.

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Section VIII -- PHOTECTION INFORMATION

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local ephanes preferable, denoted potents acceptable of the accounce to materials in Section II as metoraged the applicable exposure limits. Refer to Can Standards 1915-94, applicable exposure limits. Refer to Can Standards 1915-94, applications

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Beating IN - PINEDALITIONS

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Beolon X ... OTHER REQUIATIONY INFORMATION

CHALFOURLY PROPOSITION 665

WANTED PROPOSITION TO THE PRINTED COLORS A NUMBER OF CHALFOUR ASSETTING THE PROPERTY OF THE PRINTED FROM THE PROPERTY OF THE PROPE

APPLICATION

Typical Setups

Note: Maximum total reduction is 12% by volume to maintain 2,8 VOC.

Conventional Spray:
Air Pressure
Fluid Pressure 5-10 psi
Сар/Тр
Airless Spray:
Pressure 2000-2000 psi
TIP
Air Assisted Airless;
Air Pressure10-30 psi
Fluid Pressure
Cap/Tip :
Electrostatic Spray:

Conductivity is 0.2-0.8 megohns resistance, which is suitable for all hand-hald electrostatic spray setups.

HVLP:

Air Pressure 3-5 psi Fluid Pressure 5-10 psi Cap/Tip 040

Dipping, brushing or flowcoat application is not recommended.

Cleanup:

Clean tools/equipment immediately after use with Polane Reducer, MEK, MIBK, or MAK.

Follow manufacturer's safety recommendations when using any solvent.

Performance Tests

Chemical Resistance

Bonderite 1000 steel panels, F63W66 catalyzed and reduced, 1.5 mile dft, 30 minutes at 160°F, 14 days air cured

Salt Spray Test300 hours
1/8" nust creepage at scribe
Highest 100°F, 100% RH
impact Resistance, Direct 80 in to
Impact Resistance, Reverse 80 in lb
Pencil HardnessH
Taber Abrasion
CS 17 wheel, 1000 g, 1000 cycles <100 mg
Water Immersion 24 hours
Adhesion, Crosshatch Excellent
MEK, 100 double robs slight burnish
Heat Resistance, Dry250°F

Labricating & Culting Oils Excellent

Hydraudic Fluids Excellent

SPECIFICATIONS

Product Limitations:

- Polane HS Plus coatings must be catalyzed with V66V55 for exterior application. Do not vary catalyst ratio. Maintain an exact ratio. The catalyst ratio has been established for optimum hardness, flexibility, gloss, chemical and solvent resistance.
- For low gloss exterior applications, use Polane S Plus coatings rather than lowering gloss of Polane HS Plus.
- Do not bland with polyurethane other than Polane HS Plus and S Plus for exterior applications. No other catalysts, colorants, flatting bases or reducers are recommended because foreign materials such as alcohols and glycols destroy performance properties. Lacquer triliners and alcohol containing solvent blends should not be used with Polane enamels.
- Organic colors have limited hiding by themselves and must be blended with other chromatics for use.
- Polarie HS Plus coatings are not recommended for exterior use on wood.
- Do not spray hot. Heat shortens potlife. Do not pump catalyzed materials from drums into circulating system.
 Friction heat developed by pumps and circulation will shorten potitie.
- Protect Polane Enamels, Catalyst and Reducer from moisture as water affects potlife and properties. Store indoors.
- Do not package Polane coated products in skriight plastic bags unless completely cured. Since Polane Enamets continue to cure for several weeks, the buildup of organic solvents and reaction by-products could cause improper cure and adhesion failure in use.
- Do not exceed 1.5 mil dry film with airless or air assisted airless equipment due to segging tendencies.
- Silver F63S65 does not offer the same color and gloss retention as other colors because of the weathering effect of aluminum pigment. Do not use for applications requiring long term color and gloss retention.
- For SILVER ONLY, use MEK as a reducer rather than MAK. The fester evaporation helps the metallic pigment orientation.
- The Clear F63V67 is intended for custom color intermixing and should not be used as a clearcoal because of its potential for yellowing.
- When using the ViCTM process, coatings must be packaged in phenolic lined containers to prevent discoloration.

CAUTIONS

Thoroughly review product label for safety and cautions prior to using this product. A Material Safety Data Sheet is available from your local Sherwin-Williams facility. Please direct any questions or comments to your local Sherwin-Williams facility.

EASEL CAUTIONS

Contents are FLAMMABLE. Vapors may cause hash times. Note away from heat, sparks, and open flame. During use and unit of vapors are gone: Reep area versitated - Do not smoke - Extinguish all flames, picks lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of lightion. SEE CONTENTS STATEMENT ON LABEL.

VAFOR HARMIFUL. Use only with adequate vontilation. This product must be used with an appropriate catalyst. Follow the respirator regularment and instructions on the catalyst.

Avoid contact with eyes and skin, West hands after using. Keep container closed when not in use. Do not mansier contents to other containers for storage. FIRST AID: It in intercepts for storage. Restore beathing, Keep ware and quiet. If on SKIN: Wash affected area thoroughly with soap and water. Remove contaminated clothing, Laureler before re-use. If in EYES: Flush eyes with large amounts of water for 15 minutes. Get medical afternion. It SWALLOWED: Get medical attention, in the state of the s

SPILL AND WASTE: Remove all sources of ignition. Venitate and remove with inert absorbent, incinerate in approved facility. Do not incinerate closed container. Dispuse of in accordance with Federal, State, and Local regulation regarding polision.

DELAYED EFFECTS FROM LONG TERM OVER-EXPOSURE. Contains solvents which can exten permanent brain and nervous system damage, intentional mixture by defiberately concentrating and inhaling the contents can be harmful or later.

This product must be mixed with other components before use, Before opening the packages, READ AND FOLLOW WARNING LABELS ON ALL COMPONENTS.

WARNING: This product contains chamicals known to the State of California to

cause cancer and birth defects or other repaid wife

DO NOT TAKE INTERNALLY. KEEP OUT OF THE REACH OF CHILDREN. FOR INDUSTRIAL USE ONLY. SEE MATERIAL SAFETY DATA SHEET. KIDSHS 11/28

Catalyst CONTAINS ISOCYANATES. People who have chronic (long-term) long or breathing problems or have had a reaction to isocyanates, must not be in the area where this product is being applied. Where overspray is present, a product is being applied, where existing a properly interest and a properly fitted organic vapor/particulate respirator may be effective. Consult catalyst MSDS and product label for complete handling instructions.

Note: Product Data Sheets are periodically updated to reflect new information relating to the product. It is important that the customer obtain the most recent Product Data Sheet for the product being used. The information, rating, and opinions stated here pertain to the material currently offered and represent the results of tests believed to be reliable. However, due to variations in customer handling and methods of application which are not known or under our control. The Sherwin-Williams Company cannot make any warranties as to the end result.

Paint Mixing Guide Polene HS

White Polane	11,98 (52/98)	73
Catalya	9.34 lbs/gal	<u></u>
Reducer MAK	6.78 listual	<u> </u>

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FROM: SHERWIN-WILLIAMS CEDAR FALLS... FAX NO.: 319 277 6277 Aug. 22 2001 11:0691 P1

MOTERIAL SOFETY DATA SHEET

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The second secon Gestian I - PRODUCT AND COMPANY IDENTIFICATION HMIS CUDES PRODUCT NUMBER Health 2x Flasmobility 2 Reactivity 1 15 V66155 PRODUCT NAME POLANE* HS Plus Exterior Catalyst EMERGENCY TELEPHONE NO. MANUFACTURER'S NAME (216) 566-2917 THE SHERWIN-WILLIAMS COMPANY 181 Prospect Avenue N. W. Cleveland, OH 44115 INFORMATION TELEPHONE NO. DATE OF PREPARATION (216) 565-2902 22-AUG-01 1 A STATE OF THE PROPERTY OF T

Section 2 - COMPOSITION/INFORMATION ON INGREDIENTS x by WT CAS No. INGREDIENT LWITS VAPOR PRESSURE 64742-95-6 Light Aromatic Hydrocarbons. ĭ ACGIH TLV Not Established 3.8 % OSHA PEL Not Established 105-57-8 1, 3, 5-Trimethylbenzen+ ACCEPT TLV 25 ppm **2** A5 OSHA PEL 25 ppe 95-63-8 1.2.4-Trimethvlbenzene HERIH TLU 25 PPK 2.សំរី គណ OSHA PEL 25 ppm 123-96-4 a-Butyl Acetate. ACGIH TLV 150 pps ÎS RW ACBIH TLU 200 PPP STEL SSMA PEL 150 ppe OSHA FEL 200 ppm STEL R22-05-0 Hexamethylene Dissocyanate (max.) @. Z ACGIH TLV 0.005 ppm USHA PEL Not Established 3.95 er 28182-81-2 Hexamethylene Diisocyanate Polymer.

ACGIH TLV Not Established

DBHA PEL Not Established 30

Section 3 - MAZARDS IDENTIFICATION

ROUTES OF EXPOSURE

Exposure may be by INMALATION and/or SKIN or EYE contact, depending an conditions of use. To minimize exposure, follow recommendations for proper use, wentilabion, and personal protective equipment. EFFECTS OF OVEREXPOSURE

Irritation of eyes, skin and respiratory system. May cause norvous system depression. Extreme overexposure may result in unconsciousness and possibly death.

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FROM : SHERWIN-WILLIAMS CEDAR FALLS__ FAX NO. : 319 277 6277

Aug. 22 2001 11:07AM P2

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SIBNG AND SYMPTOMS OF OVEREXPOSURE

Headache, dizziness, neusea, and loss of coordination are indications of excessive exposive to vacant or spray sists,

Redness and itching or burning sensation may indicate eye or excessive skin exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

May cause allergic respiratory and/or skin reaction in susceptible persons or sensitization. This effect say be delayed several hours after exposure.

CAMCER INFORMATION

For exaplete discussion of toxicology data refer to Section 11.

Section 4 -- FIRST AID MEASURES

IF INHOLED: If any breathing problems occur during use, LEAVE THE

AREA and get fresh air. If problems remain or occur

later, IMMEDIATELY get medical attention.

If on SKINS Wash affected area thoroughly with spap and water.

Remove Contaminated clathing and launder before re-use,

If in EYES: Flush eyes with large amounts of mater for 13 minutes.

Get medical attention.

If SWALLOWED: Do not induce vowiting.

Get medical attention immediately. Light SEE CERT LIGHT CONTINUE CERT LIGHT CONTINUE CERT CON

FLASH POINT

E E 1 UÈL 7.5

117 F PMCC

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FLAMMABILITY CLASSIFICATION

Combustible, Flash above 99 and below 200 F EXTINGUISHING MEDIA

Carbon Diexide, Dry Chemical, Fobm UNUSUAL FIRE AND EXPLOSION HAZARDS

Keep containers tightly closed. Isolate from heat, electrical equipment, sparks, and open flame. Closed containers may suplode when exposed to extreme meat. Application to hot surfaces requires special precautions. During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention,

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, foo norzles are preferable. Water way be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

Section 6 -- ACCIDENTAL RELEASE MEASURES

Continued on page 3

FROM : SHERWIN-WILLIAMS CEDAR FALLS__ FAX NO. : 319 277 5277

Aug. 22 2001 11:079M PR

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page 3

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove all sources of ignition. Ventilate the area. All personnel in the area should be protected as in Section VIII. Dover spiil with absorbent makerial. Descrivate spilled material with a 10% ammonium hydraxide solution (household maserie). After 18 minutes, collect in onen containers and add zore assonis. Cover loosely. Wash spill area with soap

Section 7 -- HANDLING AND STORAGE

LEP NO. SEE AND REPORT FOR ADDRESS AND THE PROPERTY AND T

DOL STORAGE CATEBORY

2

PRECAUTIONS TO BE TAKEN IN HOMOLING AND STORAGE

Contents are COMBUSTIBLE. Keep away from heat and open flage. Consult NFPA Code. Use approved Bonding and Graunding procedures.

Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally. Keep out of the reach of children.

Section 8 -- EXPOSURE CONTROLS/PERSONAL PROTECTION

PRECAUTIONS TO BE TAKEN IN USE

Charles and the second of

NO PERSON SHOULD USE THIS PRODUCT, OR SE IN THE AREA WHERE IT IS BEING USED, IF THEY HAVE CHRONIC (LONG-TERM) LUNG OR BREATHING PROBLEMS OR IF THEY EVER HAD A REACTION TO ISOCYANATES.

Use only with adequate ventilation. Avoid breathing vapor and spray sist. Avoid contact with skin and eyes. Wash hands after using.

This coating way contain materials blassified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried file. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts are ACSIM TLV 10 mg/m3 (total dust), 3 mg/m3 (respirable fraction), OSHA PEL 15 mg/m3 (total dust), 5 mg/m3 (respirable fraction). VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.34, 1910.187, 1910.183. RESPIRATORY PROTECTION

Where overspray is present, a positive pressure air supplied respirator (TD19C NIOSH/MSHA approved) should be worn. If unavailable, a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2 may be effective. Follow respirator manufacturer's directions for use. Wear the respirator for the whole time of apraying and until all vapors and mists are gone. NO PERSONS SHOULD BE ALLOWED IN THE AREA WHERE THIS PRODUCT IS BEING USED UNLESS EBUIPFED WITH THE SAME RESPIRATOR PROTECTION RECOMMENDED FOR THE PAINTERS.

When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive. PROTECTIVE GLOVES

Wear gloves which are recommended by glove supplier for protection against materials in Section 2. EYE PROTECTION

Wear safety spectacles with unperforated sidoshields.

FROM : SHERWIN-WILLIAMS CEDAR FALLS._ FRX NO. : 319 277 6277 Aug. 22 2001 11:08AM F4

16

OTHER PROTECTIVE SOMEONE

Use barrier cream on exposed skin.

CTHER PREDAUTIONS

This product must be mixed with other components before use. Before opening the packages, READ AND FOLLOW WARNING LABELS ON ALL COMPONERTS.

Not Available

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal,

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT 9.34 lb/gal 1119 n/1

SPECIFIC BRAUTTY 1.12

BOILING POINT

255 - 350 F 123 - 182 C

MELTINS POINT

VOLATILE VOLUME 12 %

EVAPORATION RATE Slower than ether VAPOR DENEITY Heavier than air M. O.

SOLUBILITY IN LATER

VOLATILE ORGANIC COMPOUNDS (VOC Theoretical)

0.93 lb/gal iii g/l Less Federally Exempt Solvents 8.93 lb/gal iii g/l Emitted VOC

Bestion to -- STABILITY AND REACTIVITY

STARILITY -- Stable CONDITIONS TO AVOID

None known,

INCOMPATIBILITY

Contesination with Water, Albehola, Amines and other compounds which react with isocyanates, may result in dangerous pressure in, and possible bursting of, closed containers.

LE BAY BULL HELD AND THE STATE OF THE STATE

HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide, Oxides of Mitrogen, possibility of Hydrogen Cyanide HAZARDOUS POLYMERIZATION

Hill not secur

ed carcinopen,

Orbionged averapposure to solvent ingredients in Spotion 2 may cause adverse effects to the liver, urinary, blood forming and reproductive

Persons sensitive to isocyanates will experience increased allergic reaction on repeated exposure.

Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

TOXICOLOGY DATA

CAS No.

Ingredient Ware

84742-95-6 Light Growatic Hydrocarbons.

3.2

LCS0 RAT 4HR Not Established
LD50 RAT Not Established

Continued on page 5

FROM : SHERWIN-WILLIAMS CEDAR FALLS_ FAX NO. : 319 277 5277

Aug. 22 2001 11:09AM P5

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123-56-4	n-Butyl Acetate.						
	LCDO	i rat	4HA	2000	ppn		
		RAT		13100	mg/Kg		
82 2-0 6- 0	Hexamethylene Dii	socyanati	g (max.)				
	LCSV	RAT	4HR	Not Est	ablished		
	LDS	RAT		738	mg/kg		
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Secti	on 12 ECOLOGICAL	. INFORMAT	rion				

ECOTOXICOLOGICAL INFORMATION

No data available.

Section 13 -- DISPUSAL CONSIDERATIONS

WASTE DISPOSAL METHOD

Weste from this product may be hazardous as defined under the Assource Conservation and Recovery Act (RCRA) 48 CFR 261.

Waste must be tested for ignitability to determine the applicable SPA hazardous waste numbers.

Incinerate in approved facility. Do not incinerate closed container. Dispess of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

Section 14 - TRANSPORT INFORMATION

No data available,

Section 15 -- REGULATORY INFORMATION

SARA 313 (40 CFR 372.65C) SUPPLIER NOTIFICATION

CAS No. CHEMICAL/COMPOUND % by WT

x by WT x Element

95-63-6 1, 2, 4-Trimethyloanzene

-22

CALIFORNIA PROPOSITION 65

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. TSCA CERTIFICATION

All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

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FROM : SHERWIN-WILLIAMS CEDAR FALLS_ FAX NO. : 319 277 5277

Aug. 22 2001 11:03AM P6

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Section 15 -- OTHER INFORMATION

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product pay substantially alter the composition and hezerds of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

APPENDIX D

PAINT USAGE AND VOLATILE ORGANIC COMPOUNDS EMISSIONS CALCULATIONS

PAINT USAGE AND VOLATILE ORGANIC COMPOUNDS EMISSIONS CALCULATIONS

This appendix contains the Air Resources Board (ARB) staff evaluation of the test results submitted by the Iowa Waste Reduction Center (IWRC) to assess the effectiveness of the Laser Touch model LT-B512 assistive targeting device in reducing air pollutant emissions from coating operations. The ARB staff used the provided field data for the analysis.

Background

In October 1999, testing was conducted to evaluate the environmental benefits of the Laser Touch model LT-B512. The test was performed under specific conditions at the IWRC's Painting and Coating Compliance Enhancement (PAC2E) facility in accordance with ASTM Method D 5286-95 "Standard Test Methods for Determination of Transfer Efficiency Under General Production Conditions for Spray Application of Paints." Several painters with varying degrees of experience were asked to coat test parts as they normally would to establish their unassisted baseline. The painters were then trained on the use of the Laser Touch model LT-B512 and asked to coat the same type of parts assisted by the targeting device.

The Laser Touch model LT-B512 was tested under conditions recommended by Laser Touch and Technologies, LLC, the equipment manufacturer. The test parts painted were a uniform, solid material. The parts were 121.9 centimeters (48 inches) long, 101.6 centimeters (40 inches) wide and 1.5 to 1.7 millimeters (0.060 to 0.066 inches) thick. The manual spray gun used by all painters was an Accuspray model 19 high-volume low pressure (HVLP) pressure feed gun equipped with a 0.9 millimeter (0.036 inch) fluid tip, a 0.9 millimeter (0.036 inch) fluid needle and a #7 air cap.

Volatile Organic Compound Emissions Calculations

Laser Touch and Technologies, LLC selected Sherwin-Williams Polane HS Plus white single stage polyurethane enamel as the test coating. The coating was mixed per manufacturer's recommendation at a ratio of 3:1:0.48 with Sherwin-Williams Catalyst V66V55 and Sherwin-Williams Reducer MAKR6K30. The volatile organic compound (VOC) contents of the aforementioned mix are 2.8, 0.93, and 6.79 lbs/gallon respectfully. The pounds of VOC as applied per gallon were calculated as shown in Table D-1.

Table D-1. VOC "As Applied" Emissions Calculations

	VOC Content [lbs/gallon]	X	Mix Ratio	=	Lbs VOC/gallon
Enamel Coat	2.8	Х	3	=	8.4
Catalyst	0.93	Х	1	=	0.93
Reducer	6.76	Х	0.48	=	3.24
Total			4.48		12.57
	Total VOC	3	Total Mix Ratio	II	Lbs VOC as applied/gallon
	12.57	د	4.48	=	2.8

The test consisted of twelve painters recruited from local industries, who had varying degrees of experience (see Table D-2) and training, but none of the participating painters had any previous experience with the Laser Touch model LT-B512. Although twelve painters participated in the test, only ten produced sufficient valid test parts for data analysis.

There were two runs for each painter; one run performed without the targeting device (unassisted), and one run using the Laser Touch model LT-B512 (assisted). Each run consisted of seven parts. A total of fourteen parts were coated.

Table D-2. Painters' Experience Levels

Painter ID #	Years Work Experience	Training
1	2	Technical school
2	2	No formal training
3	3	No formal training
4	1	No formal training
5	1	No formal training
6	20	No formal training
8	20	Vendor paint school
9	3	No formal training
10	20	No formal training
11	18	Electrostatic – Airless
AVG	9	

Transfer Efficiency Calculations

Transfer efficiency (TE) was calculated using the initial and final weights of the paint cup, as well as the initial and final weights of the parts. Data analysis was verified by the ARB Monitoring and Laboratory Division and Precertification staff. The TE (%) for each painter was calculated using the equation shown below:

The values for percent change between the unassisted and assisted TE were calculated using the equation shown below:

TE Change (%) = Assisted – Unassisted

The summary of the TE results for each painter is shown in Table D-3. Numbers annotated in "()" are negative values.

%TE Painter Unassisted SD Assisted SD ID# TE TE Change 1 70.1 2.5 78.9 1.2 8.8 2 72.9 0.7 76.8 8.0 3.9 3 71.1 73.1 0.7 2.0 2.4 4 62.2 1.9 71.6 1.1 9.4 5 4.2 71.3 0.6 75.5 0.9 6 80.5 0.08 1.2 0.7 (0.5)1.2 8 75.7 0.9 80.9 5.2 9 76.1 1.4 75.2 1.5 (0.9)10 69.6 1.2 76.2 0.9 6.6 11 1.2 13.7 62.0 1.5 75.7 AVG 71.2 1.4 76.4 1.0 5.2

Table D-3. Summary TE Data

Although ASTM Method D-5286-95 does not include parameters for determining the reduction in VOC emissions from coating operations, the associated VOC decreases for these tests were estimated based on the difference in the amount of applied paint. The paint differences were calculated from the available data provided in the "Full" part results.

Paint Usage and VOC Emissions Calculations

The paint difference and percent change of paint usage were calculated using the equations below:

Paint Usage
Difference = (Assisted Total Paint Used – Unassisted Total Paint Used)

Percent Change in Paint Usage = (Assisted Total Paint Used – Unassisted Total Paint Used) x 100
Unassisted Total Paint Used

The values for the corresponding VOC emissions from paint usage were derived from the equations below:

Assisted VOC Emissions (lbs) = Assisted Total Paint Used x lbs VOC as applied/gallon*

Percent Change in VOC Emissions = (Assisted VOC Emissions – Unassisted VOC Emissions) x 100 Unassisted VOC Emissions

The summary of the aforementioned calculations derived from the "Full" part is shown in Table D-4. Numbers annotated in "()" are negative values.

^{* =} Value derived from Table D-1, VOC "As Applied" Emissions Calculations

^{* =} Value derived from Table D-1, VOC "As Applied" Emissions Calculations

Table D-4. Summary Paint Usage and VOC Reduction Evaluation From "Full" Data

Painter ID#	Unassisted TE (%)	Assisted TE (%)	TE Change (%)	Unassisted total paint used (gallons)	Assisted total paint used (gallons)	Paint usage difference (gallons)	Change in paint usage (%)	Unassisted VOC emissions (lbs)	Assisted VOC Emissions (Ibs)	Change in VOC emissions (lbs)	Change VOC emissions (%)
1	70.1	78.9	8.8	0.224	0.244	0.020	9	0.63	0.68	0.06	9
2	72.9	76.8	3.9	0.183	0.175	(0.008)	(4)	0.51	0.49	(0.02)	(4)
3	71.1	73.1	2.0	0.216	0.161	(0.055)	(25)	0.60	0.45	(0.15)	(25)
4	62.2	71.6	9.4	0.284	0.242	(0.042)	(15)	0.80	0.68	(0.12)	(15)
5	71.3	75.5	4.2	0.232	0.178	(0.054)	(23)	0.65	0.50	(0.15)	(23)
6	80.5	80.0	(0.5)	0.212	0.182	(0.030)	(14)	0.59	0.51	(80.0)	(14)
8	75.7	80.9	5.2	0.247	0.200	(0.047)	(19)	0.69	0.56	(0.13)	(19)
9	76.1	75.2	(0.9)	0.252	0.197	(0.055)	(22)	0.71	0.55	(0.15)	(22)
10	69.6	76.2	6.6	0.193	0.166	(0.027)	(14)	0.54	0.46	(80.0)	(14)
11	62.0	75.7	13.7	NA	NA	NA	NA	NA	NA	NA	NA

AVG	71.2	76.4	5.2	0.227	0.194	(0.033)	(15)	0.64	0.54	(0.09)	(15)

NA - Data not available

Summary

The ARB evaluation of the Laser Touch model LT-B512 suggests a general improvement of TE. Test results revealed an average 5.7 percent increase in TE over the unassisted TE. Data from the evaluation yielded corresponding average reduction of 15% of paint usage and VOC emissions.

It should be noted that this device is effective at reducing VOC emissions only to the extent to which the painter provides corrective action in response to the assistive feedback of the Laser Touch model LT-B512.

APPENDIX E

LASER TOUCH AND TECHNOLOGIES PART LIST FOR THE MODEL LT-B512

3.1.3

LASER TOUCH AND TECHNOLOGIES PART LIST FOR THE MODEL LT-B512

QTY	DESCRIPTION	
1	BATTERY HOLDER	-CUSTOM MADE
1	DELRIN BODY	-CUSTOM MACHINED
1	DELRIN UPPER ADJUSTER	-CUSTOM MACHINED
1	LITHUIM BATTERY	-OTC
1	BEAM SPLITTER	-CUSTOM MADE
1	LASER MODULE	-CUSTOM ORDER
1	SET OF STICKERS	-CUSTOM MADE
1	ANTI-GLARE LENSE	-CUSTOM MADE
1	DELRIN SPACER	-CUSTOM MACHINED
1	MOUNTING STUD	-OTC
1	BLOWMOLDED CASE	-OTC
1	SET OF FOAM INSERTS	-CUSTOM MADE

The information contain in this manual is consider Proprietary Information of Laser Touch and Technologies, LLC

State of California AIR RESOURCES BOARD Executive Order G-096-029-037 Equipment Precertification of Laser Touch and Technologies, LLC's Laser Touch Model LT-B512

WHEREAS, the Air Resources Board (ARB) has established a statewide Equipment and Process Precertification (Precertification) Program to assist air pollution control and air quality management districts in meeting the requirements of the Air Pollution Permit Streamlining Act (California Health and Safety Code section 42320-42323);

WHEREAS, the ARB has been given the authority under California Health and Safety Code section 39620 to develop and implement the Precertification Program, which consists of a preliminary engineering evaluation of equipment or processes and provides recommended operating conditions;

WHEREAS, this Precertification does not constitute an air pollution permit or eliminate the responsibility of the end user to comply with all federal, state, and local laws, rules, and regulations;

WHEREAS, Laser Touch and Technologies, LLC has requested a Precertification of the Laser Touch Model LT-B512, an add-on peripheral device for paint spray guns;

WHEREAS, Laser Touch and Technologies, LLC identified the following Precertification standard regarding the performance of the Laser Touch Model LT-B512: when using Laser Touch Model LT-B512 with an Accuspray Model 19 high volume, low pressure paint spray gun, in accordance with the Laser Touch manufacturer's instructions, the volume of a single-stage polyurethane enamel was decreased by an average of 15 percent therefore a corresponding volatile organic compound emissions reduction of an average 15 percent can be assumed;

WHEREAS, this Precertification is valid only when the Laser Touch Model LT-B512 is manufactured, installed, operated, and maintained in accordance with manufacturer's instructions;

WHEREAS, I find that the Applicant, Laser Touch and Technologies, LLC, has met the requirements specified in Title 17 California Code of Regulations section 91400 which incorporates the ARB's Criteria for Equipment Precertification (adopted June 14, 1996) and has satisfactorily demonstrated through independent testing that the Laser Touch Model LT-B512 described in the application meets the identified Precertification standards;

WHEREAS, this performance Precertification is subject to all conditions and requirements of the ARB's Criteria for Equipment Precertification, including the provisions relating to suspension and revocation;

WHEREAS, marketing of this device using an identification other than that shown in this Executive Order shall be prohibited unless prior approval is obtained from the ARB. Any oral or written references to this Executive Order or its content by Laser Touch and Technologies, LLC, its principals, agents, employees, distributors, dealers, or other representatives must include the disclaimer that this Executive Order is not an endorsement or approval of the Laser Touch Model LT-B512. No claim shall be made, such as "Approved by the Air Resources Board," with respect to any advertising or other oral or written communication. It is only a finding that the Laser Touch Model LT-B512 meets the identified Precertification standard, as specified in the evaluation report for application number 02260101;

WHEREAS, this performance Precertification shall expire three years from the date of this Executive Order, unless renewed;

NOW THEREFORE, IT IS HEREBY ORDERED, that the performance Precertification, Executive Order G-096-029-037, executed at Sacramento, California this 14th day of February, 2002, is hereby granted.

Michael P. Kenny Executive Officer

/S/

By: Peter D. Venturini, Chief Stationary Source Division